

CLAIMS

What is Claimed Is:

1. A portable filter unit, comprising:

5 a fan section mounted on a movable first cart, wherein the fan section comprises first and second opposite lateral ends;

a filter section mounted on a second movable cart, wherein the filter section comprises third and fourth opposite lateral ends,

10 wherein the fan section and filter section are adapted for releasably attachable interconnection of either of the opposite lateral ends of the fan section in abutting relationship with either of the opposite lateral ends of the filter section.

2. The portable filter unit of claim 1, wherein the interconnection comprising a releasable mechanical fastener.

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3. The portable filter unit of claim 1, wherein the interconnection comprising a positive pressure latch.

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4. The portable filter unit of claim 1, wherein the interconnection comprising a two or more releasable mechanical fasteners positioned around the circumference of the respective lateral ends of the filter and fan sections.

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5. The portable filter unit of claim 1, wherein the interconnection further comprising a continuous air-excluding gasket positioned between the abutting respective lateral ends of the filter and fan sections.

6. The portable filter unit of claim 1, wherein the filter section includes a macroscopic dust prefilter, a HEPA filter, and a gas adsorbent filter.

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7. The portable filter unit of claim 4, wherein gas adsorbent filter is adapted to remove at least 99.99% DMMP introduced at an intake side of the gas adsorbent filter at 5000 mg/m³ dimethylphosphonate (DMMP) for at least 20 minutes with testing two 24"x24"x16" adsorbers in series at 350 FPM approach velocity.

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8. The portable filter unit of claim 4, wherein the releasable mechanical fasteners are positioned around the circumference of the respective lateral ends of the filter and fan sections in a configuration limiting interconnections between the filter and fans sections to interconnections operable to have air flow directed 10 through the prefilter of the filter section before the HEPA filter and adsorbent filter.

9. The portable filter unit of claim 1, wherein the first and second carts each are adapted with cart rolling means.

15 10. The portable filter unit of claim 1, wherein the fan section further comprises a motor operable to drive a fan on board the fan section cart.

11. The portable filter unit of claim 10, wherein the fan comprises a centrifugal fan.

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12. The portable filter unit of claim 10, wherein the fan comprises a wheel plenum fan.

25 13. The portable filter unit of claim 1, wherein the filter section adapted to remove chemical, biological, and/or nuclear (CBR) materials from an airflow conducted through the filter unit.

14. A method for filtering toxic contaminants from air, comprising:

30 a) making a fluid connection between an enclosure airspace and outside airspace;

b) positioning a filter unit in the enclosure airspace or in the outside airspace, the filter unit comprising:

5 a fan section mounted on a movable first cart, wherein the fan section comprises first and second opposite lateral ends;

a filter section mounted on a second movable cart, wherein the filter section comprises third and fourth opposite lateral ends, and wherein the fan section and filter section are adapted for releasably attachable interconnection of either of the opposite lateral ends of the fan section in abutting relationship with either of the opposite lateral ends of the filter section;

10 c) operating the fan section effective to move a contaminated air stream drawn from either of the enclosure airspace or the outside air through the filter section effective to remove contaminants from the air stream;

d) discharging the resulting decontaminated air stream from the filter unit

15 into the other airspace.

15. The method according to claim 14, wherein step d) is performed without recontamination of the air stream with contaminants occurring after the air stream exits the filter section.

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16. The method as claimed in claim 15, wherein the enclosure airspace comprises a positive air pressure environment.

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17. The method as claimed in claim 16, wherein the filter unit being positioned in the outside airspace, and the fan section interconnected with the filter section in a manner effective to blow the air stream drawn from contaminated outside air into and through the filter section.

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18. The method as claimed in claim 16, wherein the filter unit being positioned in the enclosure airspace, and the fan section interconnected with the filter section in a

manner effective to pull the air stream drawn from contaminated outside air through the filter section.

19. The method as claimed in claim 15, wherein the enclosure airspace

5 comprises a negative air pressure environment.

20. The method as claimed in claim 19, wherein the filter unit being positioned in the outside airspace, and the fan section interconnected with the filter section in a manner effective to pull the air stream drawn from contaminated enclosure air

10 space through the filter section.

21. The method as claimed in claim 19, wherein the filter unit being positioned in the enclosure airspace, and the fan section interconnected with the filter section in a manner effective to blow the air stream drawn from contaminated enclosure air

15 space into and through the filter section.